CATEGORY DESCRIPTIONS FOR SCIENCE

04601 SCIENCE, GRADE 1

Grade 1 students describe objects by their physical properties such as a solid or liquid and observe, describe, and ask questions about soil components and properties and about living things and their relationship to their environment.

04602 SCIENCE, GRADE 2

Grade 2 students observe and describe that the properties of materials can change, they observe, measure and recognize patterns in weather and describe how organisms change their forms and behaviors as part of their life cycle.

04603 SCIENCE, GRADE 3

Grade 3 students observe and describe that sound is produced by vibrations, identify rocks and minerals by their unique properties, observe, describe, and ask questions about plant growth and development.

04604 SCIENCE, GRADE 4

Grade 4 students design and assemble electric circuits that provide a means of transferring energy, observe, describe, and ask questions about the ways that water shapes land and land shapes water flow, and about structures of organisms that affect their growth and survival.

04605 SCIENCE, GRADE 5

Grade 5 students differentiate mass and volume, identify the characteristics of physical versus chemical change, observe, describe, and ask questions about patterns in the sun- moon-earth system, about how changes in one part of an ecosystem create changes in other parts of the ecosystem.

04606 SCIENCE, GRADE 6

Grade 6 students understand that matter is composed of different states with different properties and that energy has different forms with unique characteristics. They understand the relationships between celestial bodies and the force that keeps them in regular and predictable motion. They describe the complex relationships that exist between organisms in all ecosystems. They understand that the major source of energy for all ecosystems is the sun.

04607 SCIENCE, GRADE 7

Grade 7 students understand that energy cannot be created or destroyed but only changed from one form into another or transferred from place to place. They understand forces as they apply to nature and machines. They describe how earth processes have shaped the topography of the earth and have made it possible to measure geological time. They understand the cellular structure of living organisms, from single-celled to multicellular.

04608 SCIENCE, GRADE 8

Grade 8 students understand how atomic structure determines chemical properties and how atoms and molecules interact. They explain how the water cycle and air movement are caused by differential heating of air, land, and water and how these affect weather and climate. They understand that natural and human events change the environmental conditions on the earth. They understand the predictability of characteristics being passed from parent to offspring and how a particular environment selects for traits that increase survival and reproduction by individuals bearing those traits.

3024 **BIOLOGY I**

Biology I is a course based on laboratory investigations that include a study of the structures and functions of living organisms and their interactions with the environment. Biology I students explore the structure and function of cells, cellular processes, and the interdependencies of organisms within populations, communities, ecosystems, and the biosphere.

- *Recommended Grade Level: 10*
- *Credits: A two credit course*
- Fulfills the Biology requirement for the General (Class of 2010 and subsequent classes), Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- *A Career Academic Sequence or Flex Credit course*

3064 **CHEMISTRY I**

Chemistry I is a course based on laboratory investigations of matter, chemical reactions, and the role of energy in those reactions. Chemistry I students compare, contrast, and synthesize useful models of the structure and properties of matter and the mechanisms of its interactions.

- *Recommended Grade Level: 10-12*
- *Recommended Prerequisite: Algebra II (can be taken concurrently)*
- *Credits: A two credit course*
- Counts as a Science Course for the Core 40, Core 40 with Academic Honors, Core 40 with Technical Honors or a Science Course requirement of the General Diploma
- *A Career Academic Sequence or Flex Credit course*

3044 **EARTH AND SPACE SCIENCE I**

Earth and Space Science I is a course focusing on the study of the earth's layers, atmosphere, hydrosphere, and the structure and scale of the Universe. Through laboratory and field investigations students analyze and describe Earth's interconnected systems and examine how Earth's materials, landforms, and continents are modified across geological time.

- *Recommended Grade Level: 9-10*
- *Credits: A two credit course*
- Counts as a Science Course for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- *A Career Academic Sequence or Flex Credit course*

3108 **INTEGRATED CHEMISTRY-PHYSICS**

Integrated Chemistry-Physics is a laboratory-based course in which students explore fundamental chemistry and physics principles. Students enrolled in this course examine, through the process of scientific inquiry, the structure and properties of matter, chemical reactions, forces, motion, and the interactions between energy and matter.

- *Recommended Grade Level: 9*
- *Recommended Prerequisite: Algebra I (may be taken concurrently with this course)*
- *Credits: A two credit course*
- Counts as a Science Course for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- *A Career Academic Sequence or Flex Credit course*

3084 **PHYSICS I**

Physics I is a laboratory-based course in which students synthesize the fundamental concepts and principles related to matter and energy, including mechanics, wave motion, heat, light, electricity, magnetism, atomic and subatomic physics. *Recommended Grade Level: 11-12*

- *Recommended Prerequisite: Algebra II*
- *Credits: A two credit course*
- Counts as a Science Course for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- *A Career Academic Sequence or Flex Credit course*